

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

Claims 1 and 2. (Canceled)

Claim 3. (Previously Presented) The process according to Claim 10, wherein the chromium VI oxide is used in a mixture with said other metal oxides, capable of undergoing redox cycles, in such proportions as to maintain the formation reaction of synthesis gas globally exothermic.

Claims 4 to 6. (Canceled)

Claim 7. (Previously Presented) The process according to Claim 11, which comprises:
(a) feeding the light hydrocarbon in gas phase to a first fluid bed partial oxidation reactor, containing the solid, comprising CrO_3 :

(b) discharging a gas stream essentially consisting of H_2 , CO and, optionally, the non-reacted hydrocarbon phase, from the head of the first reactor;

(c) collecting a solid containing chromium III oxide from the bottom of the first reactor and feeding the collected solid to a second fluid bed regeneration reactor maintained at a temperature substantially equal to or lower than the temperature in the oxidation reactor;

(d) feeding a stream of air at high temperature to the bottom of the second regenerator reactor; and

(e) recycling the regenerated solid to the first oxidation reactor.

Claim 8. (Original) The process according to Claim 7, wherein in the first fluid bed oxidation reactor a temperature ranging from 800 to 1100° C is maintained, together with a pressure ranging from 0.5 to 5 Mpa.

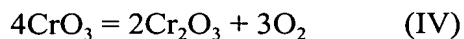
Claim 9. (Previously Presented) The process according to Claim 8, wherein in the second regeneration reactor the same operating conditions present in the first reactor are substantially maintained.

Claim 10. (Previously Presented) A process for the production of synthesis gas, which comprises:

partially oxidizing or autothermally reforming a light hydrocarbon gas with a solid comprising hexavalent chromium oxide, supported on an inert carrier and modified with an alkali or alkaline earth metal and metal oxides that are capable of autonomously sustaining the catalytic partial oxidation reaction by means of redox cycles, wherein the light hydrocarbon contacts the chromium oxide and extracts oxygen therefrom thereby partially reducing said hexavalent chromium oxide.

Claim 11. (Previously Presented) The process according to Claim 10, wherein in the

oxidation reaction in an oxidation reactor the hexavalent chromium oxide ~~catalyst~~ is reduced according to the equation:



and wherein the Cr_2O_3 produced by the oxidation of the light hydrocarbon is re-oxidized to CrO_3 by means of air in a reactor maintained at a temperature which is substantially equal to or lower than the temperature in the oxidation reactor.

Claim 12. (Previously Presented) The process according to Claim 10, wherein the light hydrocarbon is methane ethane, liquified petroleum gas, refinery gas or a naphtha.

Claim 13. (Previously Presented) The process according to Claim 12, wherein the light hydrocarbon is methane.

Claim 14. (Previously Presented) The process according to Claim 10, wherein the inert carrier of the solid is microspheroidal alumina modified by the addition of silica thereto.

Claim 15. (Previously Presented) The process according to Claim 14, wherein the microspheroidal alumina has a particle size of 40 to 100 microns and from 0.1 to 10 % by wt of silica is added thereto.

Claim 16. (Previously Presented) The process according to Claim 10, wherein the alkali metal is potassium.

Claim 17. (Previously Presented) The process according to Claim 3, wherein the other metal oxide mixed with the hexavalent chromium oxide is an oxide of copper, manganese, vanadium, cerium, titanium, iron, cobalt, praseodymium, bismuth, zinc, antimony or molybdenum.

Claim 18. (Currently Amended) The process according to Claim 15, wherein the content of chromium trioxide in the oxide ranges from 1 to 30 wt % and wherein the alkali or alkaline earth metal is potassium and wherein the content of said potassium, as potassium oxide, in the oxide ranges from 1 to 10 wt %, each with respect to the total weight of the oxide.

Claim 19. (Previously Presented) The process according to Claim 10, wherein the metal oxides that are capable of autonomously sustaining the catalytic partial oxidation reaction by means of redox cycles are selected from the group consisting of silver oxide, nickel oxide and lead oxide.

Claim 20. (Previously Presented) A process for the production of synthesis gas, which comprises:

feeding a hydrocarbon stream into a reactor in which a light hydrocarbon gas solely is partially oxidized or autothermally reformed to a synthesis gas in the presence of hexavalent chromium oxide supported on an inert carrier and modified with an alkali or alkaline earth metal, and metal oxides that are capable of autonomously sustaining the catalytic partial oxidation reaction by means of redox cycles, the hexavalent chromium oxide functioning as a source of

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oxygen for the oxidation of the light hydrocarbon gas and thereby being partially reduced.